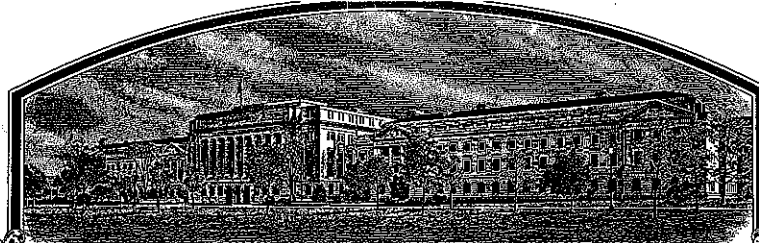


No.

200800327



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:
Colorado Wheat Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMERICAL GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Bill Brown'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this ninth day of December, in the year two thousand and eight.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

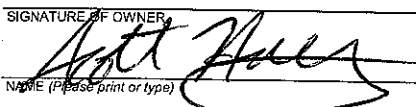


U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Colorado Wheat Research Foundation		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME CO01385-A1		3. VARIETY NAME Bill Brown	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 7100 South Clinton Street, Suite 120 Centennial, CO 80112		5. TELEPHONE (include area code) 303-721-3300		FOR OFFICIAL USE ONLY PVPO NUMBER #200800327 FILING DATE JULY 23, 2008	
		6. FAX (include area code) 303-721-7555			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Research Foundation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Dr. Scott D. Haley Soil and Crop Sciences Department 1170 Campus Delivery, CSU Fort Collins, CO 80523				FILING AND EXAMINATION FEES: \$ 4,382.00 DATE 7/23/08 CERTIFICATION FEE: \$ 768.00 DATE 8/15/08	
11. TELEPHONE (Include area code) 970-491-6483		12. FAX (Include area code) 970-491-0564		13. E-MAIL scott.haley@colostate.edu	
14. CROP KIND (Common Name) Wheat, Common		16. FAMILY NAME (Botanical) Gramineae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
15. GENUS AND SPECIES NAME OF CROP Triticum aestivum		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)	
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Exhibit F. Declaration Regarding Deposit g. <input checked="" type="checkbox"/> Voucher Sample (3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) h. <input checked="" type="checkbox"/> Filing and Examination Fee (\$4,382), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				<input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23) <input type="checkbox"/> UNDECIDED	
				21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
				IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED	
				22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
				IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input checked="" type="checkbox"/> 1 FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.					
The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.					
Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 			SIGNATURE OF OWNER		
NAME (Please print or type) Scott D. Haley			NAME (Please print or type)		
CAPACITY OR TITLE Professor, Wheat Breeder		DATE		CAPACITY OR TITLE	
				DATE	

200800327

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for \$4,382 (\$518 filing fee and \$3,864 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice). **NEW:** With the application for a seed reproduced variety or by direct deposit soon after filing, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to reproduce the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of \$768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: <http://www.ams.usda.gov/science/pvpo/PVPindex.htm>

SPECIFIC INSTRUCTIONS:

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give:
- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
 - (2) the details of subsequent stages of selection and multiplication;
 - (3) evidence of uniformity and stability; and
 - (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
 - (2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)
 Seed was first sold on September 1, 2007, in Fort Collins, CO, USA. 2

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

#200800327

PVP Application**Bill Brown Hard Red Winter Wheat****Exhibit A – Origin and Breeding History of the Variety**

Pedigree – Bill Brown was selected from the following cross: Yumar/Arlin

Experimental designations – Bill Brown was assigned the experimental identification number CO01385-A1 in 2003. Bill Brown is designated as PI 653260 in the U.S. National Plant Germplasm System.

Parents – The parents of Bill Brown are:

- 1) "Yumar" – a hard red winter wheat cultivar released by Colorado State University in 1997.
Quick, J.S., J.A. Stromberger, S. Clayshulte, B. Clifford, J.J. Johnson, F.B. Peairs, J.B. Rudolph, and K. Lorenz. 2001c. Registration of 'Yumar' wheat. Crop Sci. 41: 1363. .
- 2) "Arlin" – a hard white winter wheat cultivar released by Kansas State University in 1992.
Sears, R.G., T.J. Martin, T.S. Cox, O.K. Chung, S.P. Curran, W.F. Heer, and M.D. Witt. 1997. Registration of 'Arlin' wheat. Crop Sci. 37:627.

Bill Brown was developed using a modified bulk breeding procedure. All early generation population and line development was done in the greenhouse or an irrigated field-testing location at Fort Collins, CO. Following are the breeding procedures used in the development of Bill Brown:

- 1997 – The cross between the two parents, designated as cross population X971004, was made in the greenhouse in fall, 1997.
- 1998 – The F1 seed was harvested in January 1998 and immediately planted in a field nursery in mid-February, 1998. Seed from the F1 plants was harvested in bulk in July, 1998, and planted in an unreplicated F2 bulk nursery in September, 1998. The F2 bulk nursery was planted under furrow-irrigation in plots 7.9 m long with two rows, spaced 20 cm apart, planted on top of each of two beds spaced 76 cm apart (effective plot area 11.1 m²).
- 1999 – In July 1999, the F2 population was harvested in bulk with a small-plot combine. A non-selected subsample of the grain was planted in September, 2000, in an unreplicated F3 bulk nursery with the same plot size as in the F2. No among-cross selection was practiced.
- 2000 – Of the group of 283 different F3 populations, population X971004 was among a group of 146 populations that were selected in July, 2000 (i.e., 52% among-cross selection intensity). Selected populations were advanced by random sampling of approximately 100 spikes harvested at maturity. Selection criteria for advancement included relative plant height and maturity and visual agronomic appearance of the bulk population at harvest. Selected spikes were threshed individually and planted in a furrow-irrigated headrow nursery in September, 2000. Headrow selections were planted in a paired-row arrangement 35 cm wide and 1 m long.
- 2001 – Based on visual appraisal of uniformity and agronomic appearance, experimental line CO01385 was selected from the headrow nursery as an F3:4 line in July, 2001. Between harvest and planting (August, 2001), five g of grain from the selected headrow and approximately 630 other headrows were subjected to protein (approved method 39-

10; AACC, 2000) and hardness (approved method 39-70A; AACC, 2000) analysis via near-infrared reflectance spectroscopy (NIRS) and a modified whole-meal sodium dodecyl sedimentation (SDS) method (Dick and Quick, 1983). Based on visual observation of grain properties (size, shriveling, and color) and values for NIR protein, NIR hardness, and SDS sedimentation, CO01385 and 520 other headrows were selected and planted in preliminary yield trials in September, 2001. These trials were planted at five locations in Colorado in a single replication with 'Trego' (PI 612576; Martin et al., 2001) planted as a common check interspersed at regular intervals throughout the nursery (20% total check occurrence). Plots at each location were planted 3.7 m long, six rows wide, with 23 cm spacing between rows; all six rows were harvested (effective plot area 5.1 m²). During winter 2001-2002, lines advanced to preliminary yield trials were evaluated in standard greenhouse seedling screening tests (Nkongolo et al., 1989) for resistance to Biotype 1 Russian wheat aphid (RWA; *Diuraphis noxia* Kurdjumov) and dough mixing properties with the computerized Mixograph (AACC approved method 54-40A; AACC, 2000). To account for spatial variation in the unreplicated trials, grain yield of unreplicated experimental lines was expressed using a moving means function (Clarke et al., 1994) and as a percentage of nearby check plots.

2002 – Based on grain yield and grain volume weight data from three locations, plant height (height from the soil surface to the tip of the spikes, excluding the awns), heading date (number of days to 50% heading from Jan. 1), RWA resistance, Mixograph mixing time and tolerance, and agronomic appearance, CO01385 and 89 other lines were subject to line reselection by random sampling 20 spikes from a plot growing at Fort Collins, CO. These reselections were grown in Yuma, AZ, during winter 2002-2003.

2003 – Experimental line CO01385-A1 was selected in May, 2003, as an F5:6 line reselection from CO01385. In September, 2003, CO01385-A1 (Bill Brown) was planted in advanced yield trials at five locations in Colorado along with five checks and 62 other line reselections made in Yuma, AZ. These trials were planted with two replications and the same plot size as the preliminary yield trials. Seed purification of Bill Brown began in the 2004 crop year using visual identification and manual removal of tall and red-chaffed off-types from bulk seed increases grown under irrigation. Seed harvested from the headrow selection in Yuma, AZ, was planted in a strip plot (1.3 m wide, 7.9 m long) in fall 2003.

2004 – Based on grain yield and grain volume weight from three locations, and other characteristics as described above, Bill Brown was selected and planted in the Uniform Variety Performance Trial (UVPT) and the Irrigated Variety Performance Trial (IVPT) in September, 2004. The UVPT (non-irrigated) and IVPT are the official state variety trials for Colorado. For the UVPT, plots at each of 11 locations were replicated three times, with each plot 14 m long, six rows wide, with 23 cm spacing between rows; all six rows were harvested (effective plot area 19.3 m²). For the IVPT, plots at each of three locations were replicated three times, with each plot 7.9 m long, six rows wide, with 18 cm spacing between rows; all six rows were harvested (effective plot area 8.5 m²). During winter 2004-2005, remnant samples of grain were analyzed for milling and bread baking properties (using AACC approved methods; AACC, 2000) in the CSU Wheat Quality Laboratory. During grain filling and again at harvest, increase strips were rogued to remove tall and red-chaffed variants. A subsample of seed harvested from these strips was planted in a longer strip plot (1.3 m wide, 44 m long) in fall 2004 for production in 2005.

2005 – Based on grain yield and grain volume weight, and other screening data as described above, Bill Brown was tested in the UVPT and the IVPT for a second year with planting in fall 2005. Bill Brown was also entered into the cooperative Hard Winter Wheat

Southern Regional Performance Nursery (SRPN) in fall 2005. In fall 2005, a subsample of seed from the increase strip grown in 2005 was planted in a breeder seed ($F_{5:9}$) increase block (7.6 m wide, 185 m long) and rogued as in previous years.

2006 – Based on grain yield and grain volume weight, and other screening data as described above, Bill Brown was retained for a third year of testing in the UVPT and IVPT and a second year of testing in the SRPN with planting in fall 2006. In fall 2006, foundation seed was produced by planting all of the breeder seed harvested in 2006 in a 4.1 ha seed increase block. The foundation seed increase block ($F_{5:10}$) was rogued as in previous years.

2007 – Based on grain yield and grain volume weight, and other screening data as described above, Bill Brown was approved for release during August, 2007. The 4.1 ha seed increase block was rogued for tall and red-chaff variants as in previous years.

Bill Brown is uniform. Variants in Bill Brown are limited to: (1) tall plants greater than two spike lengths above the main canopy that occur at a frequency of fewer than 1 in 1,000 plants and (2) plants with brown glumes that occur at a frequency of fewer than 1 in 1,000 plants. The variants in Bill Brown as well as the typical plants in Bill Brown are commercially acceptable.

Bill Brown is stable. When sexually reproduced, Bill Brown remains unchanged in its essential and distinctive characteristics. Bill Brown was observed to be uniform and stable during the last four generations of seed increase (small strip increase in 2004, large strip increase in 2005, Breeder Seed increase in 2006, and Foundation Seed increase in 2007).

References

- American Association of Cereal Chemists. 2000. Approved methods of the AACC. 10th Ed. The Association, St. Paul, MN.
- Clarke, F.R., R.J. Baker, and R.M. DePauw. 1994. Moving mean and least-squares smoothing for analysis of grain-yield data. *Crop Sci.* 34:1479-1483.
- Dick, J.W., and J.S. Quick. 1983. A modified screening-test for rapid estimation of gluten strength in early-generation durum wheat breeding lines. *Cer. Chem.* 60:315-318.
- Martin, T.J., R.G. Sears, D.L. Seifers, T.L. Harvey, M.D. Witt, A.J. Schlegel, P.J. McCluskey, J.H. Hatchett. 2001. Registration of Trego wheat. *Crop Sci.* 41:929.
- Nkongolo, K.K., J.S. Quick, W.L. Meyer, and F.B. Peairs. 1989. Russian wheat aphid resistance of wheat, rye, and Triticale in greenhouse tests. *Cereal Res. Commun.* 17:227-232.
- Quick, J.S., J.A. Stromberger, S. Clayshulte, B. Clifford, J.J. Johnson, F.B. Peairs, J.B. Rudolph, and K. Lorenz. 2001c. Registration of 'Yumar' wheat. *Crop Sci.* 41: 1363.
- Sears, R.G., T.J. Martin, T.S. Cox, O.K. Chung, S.P. Curran, W.F. Heer, and M.D. Witt. 1997. Registration of 'Arlin' wheat. *Crop Sci.* 37:627.

PVP Application**Bill Brown Hard Red Winter Wheat****Exhibit B – Statement of Distinctness**

Bill Brown is most similar to the hard red winter wheat cultivar Hatcher but differs in the following characteristics:

- 1) Bill Brown has hair on its auricle, Hatcher does not have hair on its auricle.
- 2) Bill Brown has a significantly shorter coleoptile than Hatcher.

The following data are coleoptile length data (in mm) for Bill Brown and Hatcher from multiple coleoptile length tests where both cultivars were evaluated together. The P value represents the significance of the difference between Bill Brown and Hatcher based on a Student's paired *t*-test procedure (SAS-JMP version 6.0.3, SAS Institute Inc., Cary, NC).

Year	Trial Name	Rep	Hatcher	Bill Brown
2005	UVPT	1	96.2	58.6
2005	UVPT	2	76.5	62.3
2006	CSU Elite	1	76.1	69.8
2006	CSU Elite	2	74.6	67.2
2006	UVPT	1	77.4	70.7
2006	UVPT	2	70.2	63.2
2007	CSU Elite	1	79.1	66.3
2007	CSU Elite	2	87.9	67.1
2007	UVPT	1	72.3	61.5
2007	UVPT	2	73.4	60.1
Average			78.4	64.7
P Value			0.0014	

3) Bill Brown has significantly lower kernel weight than Hatcher.

The following data are kernel weight data (in mg kernel¹) from multiple Single Kernel Characterization System (SKCS) analyses that included Hatcher and Bill Brown in the same test. The P value represents the significance of the difference between Bill Brown and Hatcher based on a on a Student's paired *t*-test procedure (SAS-JMP version 6.0.3, SAS Institute Inc., Cary, NC).

Year	Location	Trial Name	Rep	Bill Brown	Hatcher	Year	Location	Trial Name	Rep	Bill Brown	Hatcher
2004	Ft Collins	Elite	1	32.0	35.4	2006	Dailey	Elite	1	22.0	26.0
2005	Ft Collins	IVPT	3	33.4	35.9	2006	Ft Collins	Elite	1	29.8	28.9
2005	Ft Collins	IVPT	4	32.4	36.8	2006	Ft Collins	Elite	2	28.6	29.0
2005	Ft Collins	IVPT	1	30.5	37.5	2006	Sh Lake	Elite	1	27.2	30.3
2005	Ft Collins	IVPT	2	34.0	37.9	2006	Ft Collins	Elite	1	30.3	31.4
2005	Akron	UVPT	2	27.4	27.9	2006	Genoa	UVPT	1	23.2	26.1
2005	Julesburg	UVPT	1	27.3	28.3	2006	Yuma	UVPT	1	23.6	27.1
2005	Akron	UVPT	3	26.7	28.7	2006	Burlington	UVPT	1	23.8	27.4
2005	Akron	UVPT	4	27.0	29.7	2007	Walsh	Elite	1	19.3	23.5
2005	Akron	UVPT	1	27.4	29.7	2007	Walsh	Elite	2	19.9	24.4
2005	Burlington	UVPT	1	29.6	31.8	2007	Burlington	Elite	1	23.0	29.4
2005	Walsh	UVPT	1	27.8	32.7	2007	Burlington	Elite	2	25.1	29.6
2005	Walsh	UVPT	4	27.8	34.1	2007	Julesburg	Elite	1	24.5	30.7
2005	Walsh	UVPT	3	25.5	35.1	2007	Julesburg	Elite	2	24.7	32.4
2005	Julesburg	VT	1	23.7	27.9	2007	Akron	Elite	1	31.4	33.4
2005	Sh Lake	VT	1	25.0	27.9	2007	Akron	Elite	2	32.2	35.6
2005	Akron	VT	1	27.1	30.2	2007	Walsh	LocChar	1	22.3	26.2
2005	Walsh	VT	1	27.7	33.6	2007	Dailey	LocChar	1	23.3	26.8
2005	Ft Collins	VT	1	30.3	34.8	2007	Julesburg	LocChar	1	24.6	28.0
2006	Dailey	Elite	1	21.6	22.7	2007	Burlington	LocChar	1	25.1	30.0
2006	Dailey	Elite	2	21.5	23.5	2007	Ft Collins	LocChar	1	31.8	36.4
2006	Akron	Elite	2	21.5	23.9	2007	Sh Lake	LocChar	1	32.2	36.6
2006	Akron	Elite	1	20.1	25.0	2007	Milliken	LocChar	1	36.5	42.6
2006	Burlington	Elite	2	24.3	25.0	2007	Akron	PYN	1	30.2	33.9
2006	Akron	Elite	1	21.9	25.3	2007	Julesburg	VT	1	25.1	27.8
2006	Burlington	Elite	1	23.3	25.8	2007	Burlington	VT	1	25.2	27.9
2006	Burlington	Elite	2	22.2	25.8	2007	Akron	VT	1	29.4	32.3
Bill Brown Average				26.5							
Hatcher Average				30.1							
P Value				<0.0001							

- 4) Bill Brown has significantly lower leaf rust infection scores than Hatcher in response to prevalent races of wheat leaf rust (*Puccinia triticina* Eriks.).

The following data are leaf rust infection data (1=resistant to 9=susceptible scale) for Bill Brown and Hatcher from multiple field trials tests where both cultivars were evaluated together. The P value represents the significance of the difference between Bill Brown and Hatcher based on a on a Student's paired *t*-test procedure (SAS-JMP version 6.0.3, SAS Institute Inc., Cary, NC).

Year	Location	Trial Name	Rep	Hatcher	Bill Brown
2007	Arapahoe	CSU Elite	1	7	1
2007	Arapahoe	UVPT	1	6	2
2007	Castroville	CSU Elite	1	9	2
2007	Castroville	CSU Elite	2	9	2
2007	Colby	CSU Elite	1	2	1
2007	Lamar	CSU Elite	1	9	1
2007	Lamar	UVPT	1	8	1
Average				7.1	1.4
P Value				0.0008	

5) Bill Brown is significantly taller than Hatcher.

The following data are plant height data (in inches) from multiple locations of the Uniform Variety Performance Trial (UVPT) that included both cultivars in the same trial. The P value represents the significance of the difference between Bill Brown and Hatcher based on a one sample Student's paired *t*-test procedure (SAS-JMP version 6.0.3, SAS Institute Inc., Cary, NC).

Year	Location	Rep	Bill	Hatcher	Year	Location	Rep	Bill	Hatcher
2005	Akron	1	17	15	2007	Akron	2	22	22
2005	Akron	2	16	13	2007	Akron	3	25	24
2005	Akron	3	15	15	2007	Akron	4	26	27
2005	Arapahoe	1	25	22	2007	Arapahoe	1	31	29
2005	Arapahoe	2	25	22	2007	Arapahoe	2	26	26
2005	Arapahoe	3	25	22	2007	Arapahoe	3	28	29
2005	Burlington	1	18	17	2007	Arapahoe	4	26	26
2005	Burlington	2	16	18	2007	Bennett	1	29	32
2005	Burlington	3	18	16	2007	Bennett	2	31	33
2005	Genoa	1	30	21	2007	Bennett	3	32	35
2005	Genoa	2	30	21	2007	Bennett	4	33	30
2005	Genoa	3	30	21	2007	Burlington	1	20	21
2005	Julesburg	1	20	16	2007	Burlington	2	21	20
2005	Julesburg	2	17	22	2007	Burlington	3	22	23
2005	Julesburg	3	18	19	2007	Genoa	1	32	33
2005	Lamar	1	31	24	2007	Genoa	2	28	31
2005	Lamar	2	31	24	2007	Genoa	3	28	29
2005	Lamar	3	31	24	2007	Genoa	4	24	33
2005	Sh Lake	1	27	26	2007	Julesburg	1	23	31
2005	Sh Lake	2	27	26	2007	Julesburg	2	34	34
2005	Sh Lake	3	27	26	2007	Julesburg	3	33	34
2005	Walsh	1	23	25	2007	Julesburg	4	24	26
2005	Walsh	2	31	26	2007	Lamar	1	36	36
2005	Walsh	3	30	28	2007	Lamar	2	36	36
2005	Yuma	1	18	17	2007	Lamar	3	34	35
2005	Yuma	2	18	17	2007	Orchard	1	21	22
2005	Yuma	3	18	17	2007	Orchard	2	25	23
2006	Akron	1	18	18	2007	Orchard	3	25	22
2006	Akron	2	19	20	2007	Sh Lake	1	30	26
2006	Burlington	1	22	20	2007	Sh Lake	2	30	28
2006	Burlington	2	22	21	2007	Sh Lake	3	29	29
2006	Burlington	3	19	20	2007	Walsh	1	30	31
2006	Burlington	4	20	20	2007	Walsh	2	32	28
2006	Walsh	1	18	15	2007	Walsh	3	31	35
2006	Walsh	2	17	16	2007	Yuma	1	28	31
2006	Walsh	3	15	17	2007	Yuma	2	35	32
2006	Walsh	4	20	19	2007	Yuma	3	31	27
Bill Brown Average				25.3					
Hatcher Average				24.5					
P Value				0.045					

- 6) Bill Brown and Hatcher show two clear differences in their DNA fingerprinting pattern as revealed by amplified fragment length polymorphism (AFLP) analysis using the AFLP primer E-ACC M-CTA (see **Figure 1** attached following page).

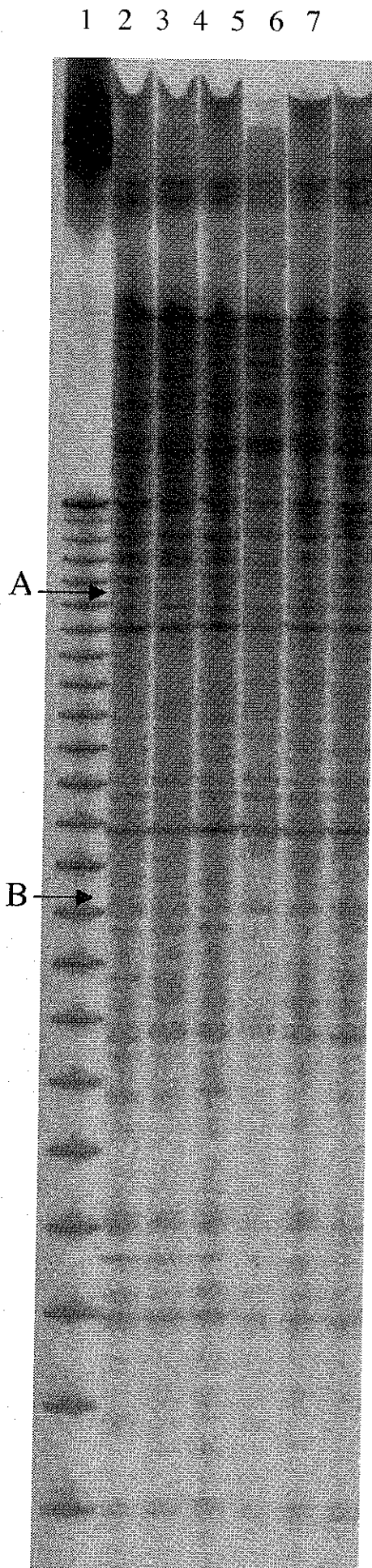


Figure 1: Amplified PCR products with AFLP primers E-ACC M-CTA, using KSU/Manhattan SGGL AFLP protocol modified from P.Vos et al (1995).

1 = Invitrogen Life Technologies 10bp DNA Ladder (Cat.#10821-015)

2 = Bill Brown 1

3 = Bill Brown 2

4 = Hatcher 1

5 = Hatcher 2

6 = Yumar 1

7 = Yumar 2

Arrow A: 286bp band present in Bill Brown 1&2, absent in Hatcher 1&2

Arrow B: 194bp band present in Bill Brown 1&2, absent in Hatcher 1&2

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Wheat (*Triticum* spp.)

NAME OF APPLICANT (S) <i>Colorado Wheat Research Foundation</i>	TEMPORARY OR EXPERIMENTAL DESIGNATION <i>COO1385-A1</i>	VARIETY NAME <i>Bill Brown</i>
ADDRESS (Street and No. or RD No., City, State, Zip Code and Country) <i>7100 South Clinton Street, Suite 120 Centennial, CO 80112 USA</i>		FOR OFFICIAL USE ONLY PVPO NUMBER #200800327

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g., or) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____ Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

☒

- 1 = Common
2 = Durum
3 = Club
4 = Other (Specify) _____

2. VERNALIZATION:

☒

- 1 = Spring
2 = Winter
3 = Other (Specify) _____

3. COLEOPTILE ANTHOCYANIN:

☒

- 1 = Absent
2 = Present

4. JUVENILE PLANT GROWTH:

☒

- 1 = Prostrate
2 = Semi-Erect
3 = Erect

5. PLANT COLOR: (boot stage)

☒

- 1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF: (boot stage)

☒

- 1 = Erect
2 = Recurved

☒

- 1 = Not Twisted
2 = Twisted

☒

- 1 = Wax Absent
2 = Wax Present

7. EAR EMERGENCE:

☒Number of Days (Average) *from January 1*☒Number of Days Earlier Than ** Prowers 99*Same As ** Hatcher*☒Number of Days Later Than ** Ripper*

*Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

8. ANTER COLOR:

☒

- 1 = Yellow
2 = Purple

9. PLANT HEIGHT: (from soil to top of head, excluding awns)

#200800327

060

cm (Average)

04

cm Taller Than

Hatcher

Same As

Ripper

06

cm Shorter Than

Powers 99

10. STEM:

A. ANTHOCYANIN

1

1 = Absent 2 = Present

B. WAXY BLOOM

2

1 = Absent 2 = Present

C. HAIRINESS (last internode of rachis)

2

1 = Absent 2 = Present

D. INTERNODE

1

1 = Hollow 2 = Semi-Solid 3 = Solid

5

Number of Nodes

E. PEDUNCLE

1

1 = Erect 2 = Recurved 3 = Semi-Erect

24

cm Length

Average of 15 stems
from 1 greenhouse
environment.

F. AURICLE

1

Anthocyanin: 1 = Absent 2 = Present

2

Hair: 1 = Absent 2 = Present

11. HEAD: (At Maturity)

A. DENSITY

2

1 = Lax
2 = Middense (Laxidense)
3 = Dense

B. SHAPE

1

1 = Tapering
2 = Strap
3 = Clavate
4 = Other (Specify) _____

C. CURVATURE

2

1 = Erect
2 = Inclined
3 = Recurved

D. AWNEDNESS

4

1 = Awnless
2 = Apically Awnletted
3 = Awnletted
4 = Awned

12. GLUMES: (At Maturity)

A. COLOR

1

1 = White
2 = Tan
3 = Other (Specify) _____

B. SHOULDER

2

1 = Wanting 2 = Oblique
3 = Rounded 4 = Square
5 = Elevated 6 = Apiculate
7 = Other (Specify) _____

C. SHOULDER WIDTH

1

1 = Narrow
2 = Medium
3 = Wide

D. BEAK

3

1 = Obtuse
2 = Acute
3 = Acuminate

E. BEAK WIDTH

1

1 = Narrow
2 = Medium
3 = Wide

F. GLUME LENGTH

2

1 = Short (ca. 7 mm)
2 = Medium (ca. 8 mm)
3 = Long (ca. 9 mm)

G. WIDTH

2

1 = Narrow (ca. 3 mm)
2 = Medium (ca. 3.5 mm)
3 = Wide (ca. 4 mm)

H. PUBESCENCE

2

1 = Not Present
2 = Present

(Hatcher = 1)

13. SEED:

A. SHAPE

- ☒ 1 = Ovate
☐ 2 = Oval
☐ 3 = Elliptical

B. CHEEK

- ☒ 1 = Rounded
☐ 2 = Angular

C. BRUSH

- ☒ 1 = Short
☐ 2 = Medium
☐ 3 = Long
- ☒ 1 = Not Collared
☐ 2 = Collared

D. CREASE

- ☒ 1 = Width 60% or less of Kernel
☐ 2 = Width 80% or less of Kernel
☐ 3 = Width Nearly as Wide as Kernel
- ☒ 1 = Depth 20% or less of Kernel
☐ 2 = Depth 35% or less of Kernel
☐ 3 = Depth 50% or less of Kernel

E. COLOR

- ☒ 1 = White
☐ 2 = Amber
☐ 3 = Red
☐ 4 = Other (Specify) _____

F. TEXTURE

- ☒ 1 = Hard
☐ 2 = Soft
☐ 3 = Other (Specify) _____

G. PHENOL REACTION (See Instructions)

- ☒ 1 = Ivory
☐ 2 = Fawn
☐ 3 = Light Brown
☐ 4 = Dark Brown
☐ 5 = Black

H. SEED WEIGHT

- ☒ 26 g/1000 Seed (whole number only)

I. GERM SIZE

- ☒ 1 = Small
☐ 2 = Midsize
☐ 3 = Large

#200800327

14. DISEASE: PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

(0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

<input checked="" type="checkbox"/> 1 Stem Rust (<i>Puccinia graminis</i> f. sp. <i>tritici</i>)	QFCS QTHJ RCRS RKQR	<input checked="" type="checkbox"/> 1 Leaf Rust (<i>Puccinia recondita</i> f. sp. <i>tritici</i>)	MCRK THBJ
<input checked="" type="checkbox"/> 2 Stripe Rust (<i>Puccinia striiformis</i>)	TPMK TTTT	<input type="checkbox"/> 0 Loose Smut (<i>Ustilago tritici</i>)	MJBJ MHOS
<input type="checkbox"/> 0 Tan Spot (<i>Pyrenophora tritici-repentis</i>)	TTKS	<input type="checkbox"/> 0 Flag Smut (<i>Urocystis agropyri</i>)	KFBJ TNRJ
<input type="checkbox"/> 0 Halo Spot (<i>Selenophoma donacis</i>)		<input type="checkbox"/> 0 Common Bunt (<i>Tilletia tritici</i> or <i>T. laevis</i>)	MFPSC MLDSB
<input type="checkbox"/> 0 <i>Septoria nodorum</i> (Glume Blotch)	PST-116	<input type="checkbox"/> 0 Dwarf Bunt (<i>Tilletia controversa</i>)	
<input type="checkbox"/> 0 <i>Septoria avenae</i> (Speckled Leaf Disease)		<input type="checkbox"/> 0 Karnal Bunt (<i>Tilletia indica</i>)	
<input type="checkbox"/> 0 <i>Septoria tritici</i> (Speckled Leaf Blotch)		<input type="checkbox"/> 0 Powdery Mildew (<i>Erysiphe graminis</i> f. sp. <i>tritici</i>)	
<input type="checkbox"/> 0 Scab (<i>Fusarium</i> spp.)		<input type="checkbox"/> 0 "Snow Molds"	
<input type="checkbox"/> 0 "Black Point" (Kernel Smudge)		<input type="checkbox"/> 0 Common Root Rot (<i>Fusarium</i> , <i>Cochliobolus</i> and <i>Bipolaris</i> spp.)	
<input type="checkbox"/> 1 Barley Yellow Dwarf Virus (BYDV)		<input type="checkbox"/> 0 Rhizoctonia Root Rot (<i>Rhizoctonia solani</i>)	
<input type="checkbox"/> 1 Soilborne Mosaic Virus (SBMV)		<input type="checkbox"/> 0 Black Chaff (<i>Xanthomonas campestris</i> pv. <i>translucens</i>)	
<input type="checkbox"/> 1 Wheat Yellow (Spindle Streak) Mosaic Virus		<input type="checkbox"/> 0 Bacterial Leaf Blight (<i>Pseudomonas syringae</i> pv. <i>syringae</i>)	
<input type="checkbox"/> 1 Wheat Streak Mosaic Virus (WSMV)		<input checked="" type="checkbox"/> 2 Other (Specify) LEAF RUST ADULT PLANT, SAME RACES	
<input type="checkbox"/> Other (Specify) _____		<input checked="" type="checkbox"/> 3 Other (Specify) STRIPE RUST, PST-100	
<input type="checkbox"/> Other (Specify) _____		<input type="checkbox"/> 1 Other (Specify) STRIPE RUST, PST-17, -37, -45	
<input type="checkbox"/> Other (Specify) _____		<input type="checkbox"/> Other (Specify) _____	

15. INSECT: (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

<input checked="" type="checkbox"/> 1 Hessian Fly (<i>Mayetiola destructor</i>)	Great Plains Biotype	<input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> 0 Stem Sawfly (<i>Cephus</i> spp.)		<input type="checkbox"/> Other (Specify) _____
<input type="checkbox"/> 0 Cereal Leaf Beetle (<i>Oulema melanopa</i>)		<input type="checkbox"/> Other (Specify) _____

15. INSECT: (continued) (0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Intermediate 4 = Tolerant)

PLEASE SPECIFY BIOTYPE (Where Needed)

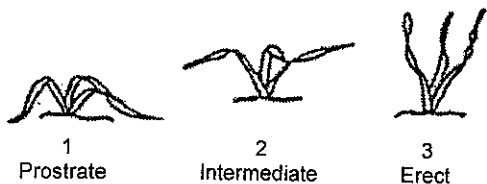
- | | |
|--|--|
| <input checked="" type="checkbox"/> Russian Aphid (<i>Diuraphis noxia</i>) - Biotype 1 | <input checked="" type="checkbox"/> Other (Specify) <u>Russian wheat Aphid Biotype 2</u> |
| <input checked="" type="checkbox"/> Greenbug (<i>Schizaphis graminum</i>) - Biotype C, E | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Aphids | <input type="checkbox"/> Other (Specify) _____ |

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS:

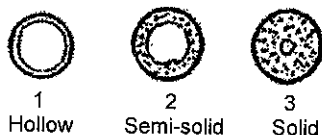
Section Numbers Correspond to the Numbers of the Sections on the Form

#200800327

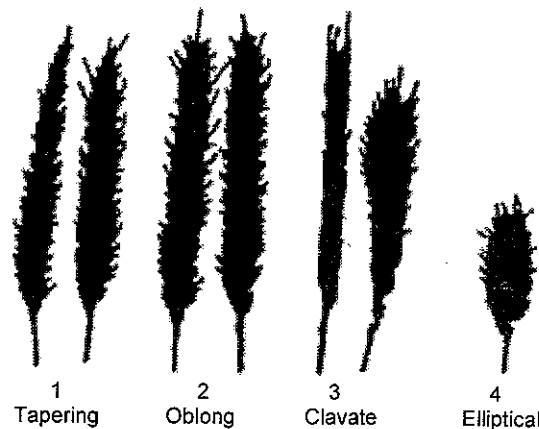
4. EARLY PLANT GROWTH HABIT:



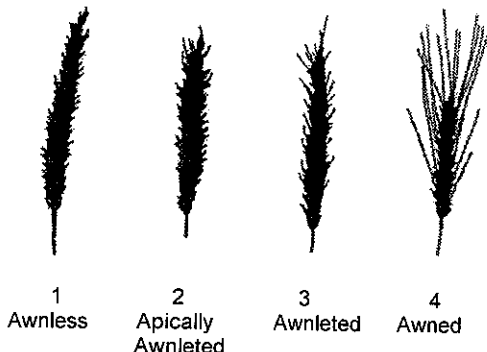
10. (D.) STEM INTERNODE X-SECTION:



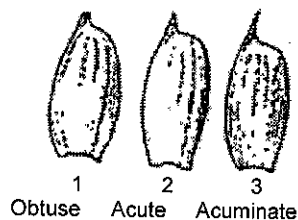
11. (B.) SPIKE SHAPE:



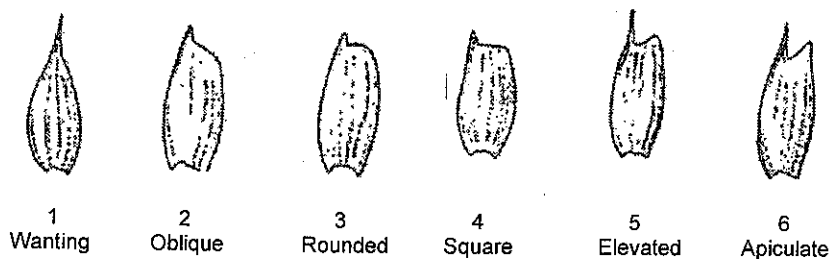
11. (D.) AWNEDNESS:



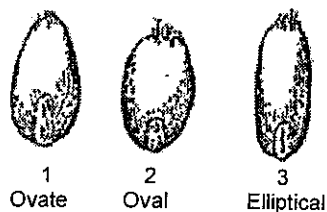
12. (D.) BEAK SHAPE:



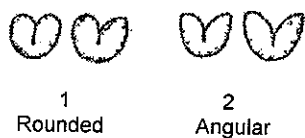
12. (C.) SHOULDER SHAPE:



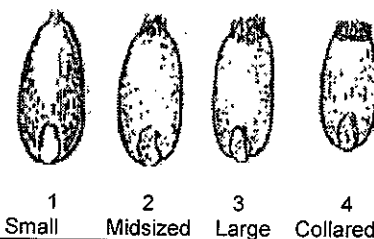
13. (A.) SEED SHAPE:



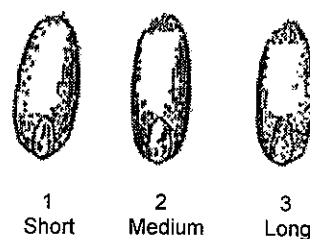
13. (B.) CHEEK SHAPE:



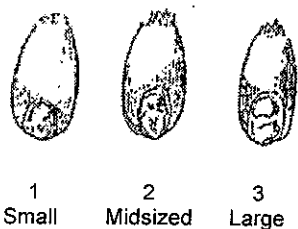
13. (C.) BRUSH SIZE



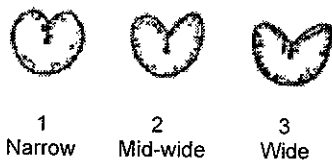
13. (C.) BRUSH HAIR LENGTH:



13. (I.) GERM (EMBRYO) SIZE:



13. (D.) SEED CREASE WIDTH:



13. (D.) SEED CREASE DEPTH:



PVP Application**Bill Brown Hard Red Winter Wheat****Exhibit D – Additional Description of the Variety (optional)**

The following additional descriptive information is presented:

- 1) Table 1. Agronomic data summary from the 2005-2007 Dryland Colorado Variety Performance Trials (UVPT).
- 2) Table 2. Grain yield and test weight for Bill Brown and other entries tested in Dryland Colorado Variety Performance Trials (UVPT; 2005-2007). Entries are ranked by the three-year average.
- 3) Table 3. Grain yield and test weight for Bill Brown and other entries tested in Irrigated Colorado Variety Performance Trials (IVPT; 2005 to 2007). Entries are ranked by the three-year average.
- 4) Table 4. Grain yield and test weight for Bill Brown and other entries tested in dryland and irrigated CSU Elite Trials (2005 to 2007). Entries are ranked by the three-year average across all testing locations.
- 5) Table 5. Grain yield for Bill Brown and other entries tested in High Plains dryland locations of the 2006 Southern Regional Performance Nursery (SRPN). Bill Brown and checks are bolded.
- 6) Table 6. Grain yield for Bill Brown and other entries tested in High Plains dryland locations of the 2007 Southern Regional Performance Nursery (SRPN). Bill Brown and checks are bolded.
- 7) Table 7. Milling and bread baking characteristics of Bill Brown, Ripper, Hatcher, and Above across multiple quality evaluations from the 2004, 2005, 2006, and 2007 crop seasons.

Table 1. Agronomic data summary from the 2005-2007 Dryland Colorado Variety Performance Trials (UVPT).

	Heading Date	Plant Height	Coleoptile Length
	--- days [†] ---	--- inches ---	--- mm ---
Bill Brown	141.5	23.7	62.7
Ripper	139.9 ns	23.4 ns	87.5 *
Prairie Red	139.0 *	22.8 *	82.2 *
Hatcher	142.7 ns	22.4 *	77.7 *
Ankor	141.8 ns	23.1 ns	80.3 *
Prowers 99	144.7 *	26.0 *	96.3 *
Observations	10	53	6

[†] Days from January 1.

* significance ($\alpha=0.05$) of a Paired *t*-test between Bill Brown and the respective cultivars;
ns=nonsignificant.

Table 2. Grain yield and test weight for Bill Brown and other entries tested in Dryland Colorado Variety Performance Trials (UVPT; 2005-2007). Entries are ranked by the three-year average.

Entry	Grain Yield					Test Weight				
	2005	2006	2007	Two Yr Avg [†]	Three Yr Avg [‡]	2005	2006	2007	Two Yr Avg	Three Yr Avg
	----- bu/a -----					----- lb/bu -----				
Hatcher	35.7	26.6	61.3	44.0	41.4	57.6	58.2	59.4	58.9	58.5
Bill Brown	41.2	27.0	55.7	41.3	41.3	58.5	58.6	59.4	59.1	58.9
Bond CL	38.9	26.0	56.8	41.4	40.6	56.4	56.3	58.4	57.5	57.1
Ripper	38.8	27.8	54.6	41.2	40.4	56.9	56.8	57.5	57.2	57.1
Keota	33.7	26.9	57.0	42.0	39.4	56.2	58.6	60.0	59.4	58.3
Infinity CL	31.1	27.5	56.6	42.0	38.6	56.6	57.4	58.7	58.2	57.6
Jagger	32.7	26.1	56.3	41.2	38.5	56.4	57.4	59.0	58.3	57.7
Endurance	30.6	27.1	55.9	41.5	38.1	58.0	58.3	59.1	58.7	58.5
Above	33.0	25.5	54.5	40.0	37.8	58.2	57.7	58.1	57.9	58.0
Yuma	30.7	26.2	55.4	40.8	37.6	56.5	57.4	58.9	58.2	57.7
Jagalene	33.0	24.5	53.9	39.2	37.3	57.2	58.8	60.0	59.5	58.7
Danby	30.8	25.2	55.0	40.1	37.2	57.8	60.1	61.0	60.6	59.7
Alliance	32.1	26.3	52.7	39.5	37.2	57.7	57.5	58.0	57.8	57.8
TAM 111	29.4	24.3	56.8	40.5	37.1	--	58.8	59.3	59.1	--
Avalanche	32.9	26.2	50.8	38.5	36.7	58.5	59.2	59.7	59.5	59.2
Prairie Red	33.0	24.6	51.6	38.1	36.5	57.6	57.6	58.0	57.8	57.7
Ankor	29.7	26.2	51.9	39.0	36.1	--	57.5	58.1	57.8	--
Akron	27.1	25.8	52.4	39.1	35.4	--	57.9	58.4	58.2	--
Goodstreak	30.0	27.4	47.5	37.4	35.1	58.2	58.5	59.8	59.2	58.9
Trego	26.1	26.2	51.6	38.9	34.9	--	59.6	60.0	59.8	--
Prowers 99	31.2	23.6	46.5	35.1	33.9	57.7	58.5	59.9	59.3	58.7
Average	32.5	26.0	54.0	40.0	37.7	57.4	58.1	59.1	58.7	58.2
Locations	10	11	11	22	32	10	11	11	22	32

[†] Two year average includes 2006 and 2007.

[‡] Three year average includes 2005, 2006, and 2007.

Table 3. Grain yield and test weight for Bill Brown and other entries tested in Irrigated Colorado Variety Performance Trials (IVPT; 2005 to 2007). Entries are ranked by the three-year average.

Entry	Grain Yield					Test Wt	Lodging Score ^s
	2005	2006	2007	Two Yr Avg [†]	Three Yr Avg [‡]		
	----- bu/a -----					--- lb/bu ---	
Bill Brown	98.8	80.2	95.6	87.9	91.6	60.1	3.3
Bond CL	89.8	79.5	95.4	87.4	88.2	58.5	3.3
TAM 111	87.2	84.8	87.1	86.0	86.4	59.9	3.0
Hatcher	89.7	71.0	89.4	80.2	83.4	59.7	5.7
NuGrain	88.0	72.2	86.2	79.2	82.1	60.6	1.7
Yuma	78.5	72.0	94.1	83.1	81.5	58.8	4.0
Jagalene	84.9	71.4	85.7	78.5	80.7	60.2	3.7
Ankor	81.8	74.7	80.3	77.5	78.9	58.5	4.0
Platte	68.7	80.7	80.7	80.7	76.7	60.1	1.0
Prairie Red	64.4	71.2	77.0	74.1	70.9	58.3	2.3
Average	83.2	75.8	87.2	81.5	82.0	59.5	3.9
Locations	3	3	3	6	9	9	1

[†] Two year average includes 2006 and 2007.

[‡] Three year average includes 2005, 2006, and 2007.

^s Lodging score (Rocky Ford 2007): 1=completely erect, 9=completely flat.

Table 4. Grain yield and test weight for Bill Brown and other entries tested in dryland and irrigated CSU Elite Trials (2005 to 2007). Entries are ranked by the three-year average across all testing locations.

Entry	Grain Yield							TestWt
	2005	2006	2007	All Locations	Dryland Locations	Irrigated Locations	Colorado Dryland	
	----- bu/a -----							--- lb/bu ---
Bill Brown	59.8	31.4	63.7	53.0	49.0	81.5	44.6	59.4
Hatcher	56.0	31.0	62.9	51.6	48.0	76.5	42.2	58.7
TAM 111	58.7	28.7	61.9	51.2	46.9	81.1	41.0	59.3
Bond CL	56.9	31.0	60.9	50.9	46.6	81.3	42.6	57.7
Jagalene	56.8	29.5	58.4	49.3	45.4	76.8	41.0	59.6
Above	46.1	29.5	58.9	46.8	44.5	63.5	39.8	58.3
Ripper	48.1	31.0	54.8	46.0	43.1	66.4	39.0	57.2
Avalanche	48.3	29.5	54.6	45.5	41.4	74.2	38.0	59.7
Ankor	46.7	28.5	54.9	44.9	41.9	66.3	37.5	57.8
Average	53.1	30.0	59.0	48.8	45.2	74.2	40.6	58.6
Locations	10	12	18	40	35	5	20	32

Table 5. Grain yield (bu/a) for Bill Brown and other entries tested in High Plains dryland locations of the 2006 Southern Regional Performance Nursery (SRPN). Bill Brown and checks are bolded.

ID	Region	Clovis		Burlington	Clay Center		Alliance		Avg	
	Bushland		Akron	Garden City	North Platte					
TAM-107	49.3	15.4	12.7	36.8	28.1	28.6	72.1	34.4	46.6	31.5
HV9W02-846R	51.3	18.7	10.5	16.3	24.1	30.7	85.0	48.1	49.6	31.2
TX99A0153-1	51.9	19.2	15.6	20.4	13.7	36.0	78.5	49.8	41.1	30.9
NI04421	53.4	15.7	15.8	21.5	17.8	29.8	82.4	47.8	45.6	30.9
Bill Brown	51.9	15.1	15.3	28.1	18.7	29.7	71.5	42.2	46.2	30.9
T153	52.0	18.3	8.8	21.0	25.9	33.1	78.8	43.0	44.7	30.8
OK01420	52.5	15.4	12.5	31.7	14.4	32.1	80.1	40.4	43.2	30.3
NE03490	51.9	18.6	14.4	12.1	14.0	34.3	76.2	44.9	48.7	29.9
NuDakota	51.3	14.9	7.9	36.8	11.2	36.2	86.6	32.8	46.0	29.6
T152	49.4	11.3	6.9	30.0	20.5	30.9	86.3	41.6	46.5	29.6
KS00F5-20-3-2	50.8	18.5	11.1	24.8	18.2	33.2	86.9	35.2	44.1	29.5
Duster	52.0	15.7	10.6	18.2	17.5	28.7	84.5	48.3	42.7	29.2
Postrock	50.0	16.5	11.7	20.9	21.1	31.7	84.5	39.5	40.8	29.0
TX03M1096	48.0	17.7	6.6	24.2	20.1	29.7	66.1	43.1	40.8	28.8
OK00310-367101	52.1	14.3	10.4	23.2	17.0	33.5	84.4	38.1	40.8	28.7
HV9W96-1383W	49.8	12.5	5.5	22.9	12.4	29.7	82.5	53.3	38.2	28.0
TX01A5936	47.0	16.6	10.0	25.6	18.2	31.8	68.9	35.2	39.9	28.0
HV9W94-CB94005R	52.3	15.9	10.2	20.7	19.9	26.8	82.9	42.0	36.1	28.0
Hawken	48.3	14.6	10.6	31.0	10.6	25.9	81.8	41.6	40.9	27.9
AP03TA7525	49.0	18.3	12.1	16.6	15.6	33.2	79.5	38.3	40.0	27.9
TX01V6008	47.9	19.1	7.7	24.4	14.2	30.8	69.8	30.9	47.3	27.8
Doans	47.3	19.9	8.4	29.3	15.7	29.3	66.9	34.2	38.2	27.8
TX01V5314	49.2	17.9	8.0	15.6	15.9	30.6	76.0	41.8	43.1	27.8
Fuller	49.8	18.2	12.8	18.5	14.9	32.0	83.9	34.5	38.8	27.4
CO01W171	48.1	15.5	12.7	11.7	13.8	37.8	74.0	35.3	44.5	27.4
T151	51.4	17.1	12.7	13.4	13.5	35.3	83.0	30.3	45.3	27.4
Trego	46.8	19.4	15.6	12.5	12.2	30.4	79.6	38.8	42.3	27.3
CO01W172	45.0	14.4	11.8	14.3	13.9	30.4	67.3	35.1	48.5	26.7
TX01A7326	46.9	12.9	8.0	26.7	11.1	29.0	70.5	36.9	41.4	26.6
KS03HW6-6CL	49.7	16.7	12.6	13.4	15.9	28.4	75.7	39.1	36.9	26.6
CO01212	45.4	17.4	9.4	14.7	10.4	25.8	58.9	46.4	43.0	26.6
NI03418	47.1	14.0	10.4	14.6	13.6	39.4	72.0	35.7	37.1	26.5
KS980512-11~2	50.7	16.3	10.4	15.4	10.8	27.5	86.4	38.7	40.9	26.3
OK02522W	48.1	14.8	8.1	23.5	16.2	28.6	82.6	34.7	36.4	26.3
Scout 66	39.9	14.7	12.8	26.5	13.8	26.1	53.1	35.8	39.0	26.1
OK02405	45.4	14.5	9.3	19.4	13.7	27.2	76.3	36.0	41.6	25.9
CO01473	42.8	16.4	12.2	17.3	11.2	25.0	63.3	40.0	40.5	25.7
Art	48.3	19.4	10.6	14.2	12.1	28.5	86.1	35.3	37.0	25.7
TX03M1004	48.0	16.1	9.2	13.3	15.5	25.7	75.2	33.8	41.9	25.4
HV9W96-1270R-1	46.7	15.4	5.4	24.0	16.0	19.7	76.6	36.6	33.6	24.7
T150	47.4	13.2	7.3	10.8	11.8	27.5	67.0	36.2	39.5	24.2
RonL	46.7	17.9	9.5	7.1	19.0	32.6	81.6	40.8	19.1	24.1
NI02425	43.3	12.8	8.6	9.1	14.6	29.4	69.4	31.4	43.0	24.0
TX03M1179	41.2	16.3	9.6	31.0	16.5	27.2	62.0	28.1	19.5	23.7
AP03T6115	44.2	11.7	8.7	14.8	21.1	23.3	68.0	28.3	37.1	23.6
KS970197-8-9	45.6	11.9	6.8	16.4	11.5	24.6	70.6	29.5	42.6	23.6
OK00224-36805	45.5	13.9	7.9	15.3	10.6	24.7	67.2	31.9	38.8	23.6
AP03T6126	43.9	16.2	9.4	16.5	13.9	29.2	63.2	26.0	26.8	22.7
NW03Y2016	38.9	15.9	11.0	8.1	12.0	29.2	55.7	40.3	26.4	22.7
Kharkof	30.4	10.4	11.9	15.1	14.3	21.0	44.0	26.7	36.0	20.7
Average	47.7	15.9	10.4	19.8	15.6	29.6	74.5	37.8	40.2	27.1

Table 6. Grain yield for Bill Brown and other entries tested in High Plains dryland locations of the 2007 Southern Regional Performance Nursery (SRPN). Bill Brown and checks are bolded.

ID	Colby		Walsh		Julesburg		North Platte		Alliance		
	Bushland	Garden City	Akron	Burlington	Sidney	Average					
BC98331-03\$-2W	56.0	85.6	56.3	52.9	65.5	74.5	34.5	92.9	82.0	64.1	66.4
HV9W02-271W	46.4	83.5	54.1	44.9	66.1	56.4	34.6	85.7	75.7	58.9	60.6
KS970093-8-9-#1	49.1	84.6	56.5	34.0	61.4	62.4	41.7	90.7	64.5	59.5	60.4
T153	62.8	73.8	64.5	53.4	47.5	66.1	29.9	75.5	73.1	54.1	60.1
KS980512-2-2	53.8	88.9	64.3	41.8	46.3	59.5	31.5	82.8	62.9	62.4	59.4
T158	50.0	76.7	51.1	50.1	60.4	49.9	35.2	80.2	71.7	63.9	58.9
TX03M1096	50.5	81.4	52.6	42.0	59.5	48.6	36.9	88.4	71.6	55.7	58.7
NI04420	45.7	77.9	52.7	45.1	62.8	47.7	32.7	88.1	71.4	62.4	58.7
99x0212-2	47.6	85.9	50.0	49.1	50.3	52.2	37.2	85.2	67.7	59.1	58.4
Bill Brown	49.5	86.6	51.4	40.4	46.4	63.1	37.5	80.2	63.6	65.4	58.4
HV9W96-1271R-1	46.0	88.4	45.2	49.3	41.7	43.7	36.8	98.4	72.9	61.1	58.4
OK03522	51.2	80.9	47.9	46.3	51.7	61.3	34.9	93.0	61.3	53.7	58.2
BC98334-04\$-02\$	54.5	80.9	61.7	50.2	46.3	47.4	35.9	83.6	60.7	55.7	57.7
NE04424	50.8	76.0	54.0	41.3	44.8	47.2	34.5	86.5	78.4	61.6	57.5
KS980512-11-22	47.3	77.9	62.0	47.7	51.6	58.4	29.2	80.8	64.6	54.0	57.3
T154	57.6	78.1	58.1	52.7	46.4	47.5	20.7	85.5	70.9	55.3	57.3
T151	53.2	80.7	60.4	43.9	43.1	53.3	16.5	90.2	69.7	60.0	57.1
TX03A0563	51.8	84.8	50.6	50.8	55.2	53.1	38.0	64.6	61.4	60.0	57.0
Hawken	40.2	77.1	51.5	50.0	45.6	66.2	37.3	75.6	64.9	60.8	56.9
HV9W02-267W	47.6	77.1	57.5	42.7	48.2	55.2	30.7	71.7	73.2	60.9	56.5
TX99A0153-1	57.3	90.3	50.4	43.9	41.7	53.4	35.2	70.4	62.4	59.2	56.4
KS990498-3-&~2	45.1	82.0	51.7	41.1	53.8	51.4	32.9	76.6	68.0	60.4	56.3
KS04HW47-3-4	43.0	90.1	51.8	43.1	44.7	37.1	35.5	86.3	67.6	60.3	56.0
CO03W239	44.9	73.0	51.9	48.0	52.5	46.0	29.8	77.1	71.1	64.4	55.9
TX03A0148	49.1	83.5	56.1	42.0	60.7	43.2	35.0	64.3	60.4	60.4	55.5
TX02A0252	43.4	86.8	38.1	45.2	31.3	48.2	31.2	82.1	77.2	66.4	55.0
OK02125	54.1	83.6	58.7	49.2	24.9	35.1	27.1	95.4	66.6	53.9	54.9
BC98334-10W-8W	50.1	83.4	56.1	51.3	20.5	47.0	26.8	74.3	74.6	62.2	54.6
OK03305	44.7	82.9	55.7	38.5	52.9	53.7	36.0	66.7	58.5	56.1	54.6
OK02522W	50.4	80.4	56.7	34.9	49.0	52.6	25.0	79.8	57.9	53.6	54.0
Art	46.6	86.2	52.7	45.2	25.3	49.7	25.0	81.9	70.1	57.1	54.0
HV9W02-112W	44.1	85.4	47.5	48.8	45.6	50.9	25.2	69.6	66.4	56.3	54.0
TX01V5136RC	45.7	78.9	52.6	36.0	44.6	49.8	27.1	77.3	67.5	57.8	53.7
NI04421	42.8	67.7	43.9	36.1	62.2	46.7	30.9	75.3	65.7	64.9	53.6
NI04428	52.0	78.7	48.7	42.1	23.8	52.2	28.3	69.7	72.5	56.6	52.5
TX04M410068	43.9	81.1	39.0	46.7	41.1	40.7	23.8	89.4	61.8	55.6	52.3
TX01A7340	47.1	84.9	38.8	41.5	41.7	46.1	28.2	81.1	54.7	51.5	51.5
CO03W054	39.6	72.0	48.2	44.8	35.5	38.1	30.3	85.3	62.4	59.1	51.5
TAM-107	49.9	69.0	52.1	41.3	47.3	41.1	31.5	60.4	64.9	55.8	51.3
SD05W012	48.3	74.1	45.1	40.9	19.3	62.8	23.8	76.2	68.9	53.4	51.3
OK Bullet06ERU	44.1	80.1	46.2	40.4	35.7	48.0	26.1	74.0	58.7	53.7	50.7
CO02W280	46.8	74.5	45.3	45.7	43.2	29.6	26.5	72.9	62.9	58.9	50.6
Trego	42.0	81.2	49.4	38.2	31.1	31.8	26.5	75.1	62.3	56.3	49.4
T159	40.9	72.4	32.0	38.9	44.2	40.0	25.0	84.8	57.6	57.2	49.3
OK05737W	45.6	81.6	41.9	39.6	28.0	41.5	28.3	70.1	56.6	53.9	48.7
SD05W138	43.8	73.6	50.9	35.6	22.6	40.5	29.1	68.3	64.0	55.9	48.4
CO03W269	41.2	70.0	44.6	47.8	41.5	48.9	22.7	49.2	60.6	54.8	48.1
CO03443	40.5	67.4	39.4	42.7	41.3	38.9	22.7	57.4	72.4	56.9	48.0
Scout 66	27.6	63.7	29.8	32.4	26.4	26.4	22.6	58.5	52.7	53.8	39.4
Kharkof	24.7	51.9	24.2	21.8	24.9	19.7	11.2	50.7	42.5	48.0	32.0
Average	47.0	79.1	50.0	43.5	44.0	48.5	29.9	77.6	65.8	58.1	54.4

Table 7. Milling and bread baking characteristics of Bill Brown, Ripper, Hatcher, and Above across multiple quality evaluations from the 2004, 2005, 2006, and 2007 crop seasons.

Trait (unit of measurement)	Comparisons	Bill Brown	Ripper	Hatcher	Above
SKCS [†] kernel weight (mg)	49	25.7	30.5 *	29.8 *	28.9 *
SKCS kernel diameter (mm)	49	2.51	2.67	2.62 *	2.62 *
SKCS kernel hardness index (score)	49	74.0	62.1 *	64.3 *	68.8 *
Wheat protein content (g kg ⁻¹)	42	137	142 *	148 ns	138 ns
Wheat ash content (g kg ⁻¹)	42	15.3	15.2 ns	17.1 ns	15.6 *
Flour extraction (g kg ⁻¹)	22	643	657 *	656 *	641 ns
Mixograph peak time (min)	28	4.59	3.34 *	4.42 ns	2.82 *
Mixograph peak width (%)	29	21.7	22.0 ns	21.2 ns	16.8 *
Mixograph right width (%)	23	12.0	11.7 ns	15.0 *	9.8 *
Bake water absorption (g kg ⁻¹)	20	660	671 *	656 ns	663 ns
Bake mix time (min)	20	3.96	3.16 *	3.73 ns	2.34 *
Loaf volume (L)	20	1.011	1.003 ns	0.999 ns	0.861 *
Crumb color (score) [‡]	20	3.50	3.55 ns	4.40 *	2.80 *
Crumb grain (score) [‡]	20	3.40	3.65 ns	3.75 ns	1.50 *

* Significance of the difference between Bill Brown and the indicated check cultivar based on a Student's paired t-test procedure (SAS-JMP version 6.0.3, SAS Institute Inc., Cary, NC) at the 0.05 probability level; ns=not significant.

[†] Single kernel characterization system (SKCS).

[‡] Crumb color and crumb grain score scales: 6=outstanding, 0=unacceptable.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E

STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) <i>Colorado Wheat Research Foundation</i>	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER <i>CO01385-A1</i>	3. VARIETY NAME <i>Bill Brown</i>
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) <i>7100 South Clinton Suite 120 Centennial, CO 80112</i>	5. TELEPHONE (include area code) <i>303-721-3300</i>	6. FAX (include area code) <i>303-721-7555</i>
7. VPPO NUMBER <i>#200800327</i>		
8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO

10. Is the applicant the original owner? ☐ YES ☒ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

The cultivar Bill Brown was developed at Colorado State University (CSU) by a team of researchers led by Dr. Scott Haley, an employee at CSU. By agreement between Dr. Haley and CSU, all rights to wheat cultivars developed by him while employed at CSU are assigned to CSU. Ownership of Bill Brown has been Transferred to the Colorado Wheat Research Foundation.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) Colorado wheat Research Foundation	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 7100 S. Clinton, Suite 120 Centennial, CO 80112	TEMPORARY OR EXPERIMENTAL DESIGNATION CO 01385-A1 VARIETY NAME Bill Brown
NAME OF OWNER REPRESENTATIVE (S) Dr. Scott A. Hoxley	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 1170 Campus Delivery CA Fort Collins, CO 80523	FOR OFFICIAL USE ONLY PVPO NUMBER #200800327

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature

Date